

Understanding Water Quality Standards

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Monitoring Conference
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Topics

- **What are water quality standards (WQS)?**
- **How are WQS used?**
- **Stakeholder role of volunteer monitoring groups in WQS development.**
- **Recent stakeholder involvement with VA WQS amendments.**
- **Opportunities to become involved with upcoming VA WQS amendments.**



What are water quality standards?

Water Quality Standards Statutory Authority



Federal and State Mandated Regulation

Federal

§ § 101, 303 Clean Water Act
40 CFR 131 WQS Regulation

State

Code of Virginia Chapter 3 Title 62.1
§ 62.1-55.15(3a)
Virginia Administrative Code
9 VAC 25-260-5 *et seq.*





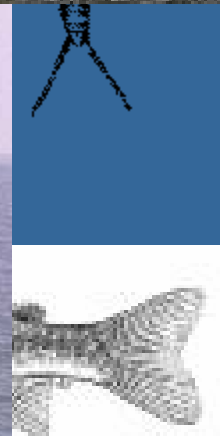
Minimum Requirements of WQS

- Use Designations
- Criteria
- Antidegradation Policy



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- Use Designations
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Designated Uses



Trout Waters

Recreation (swimming and boating)

Aquatic Life

balanced, indigenous including game fish

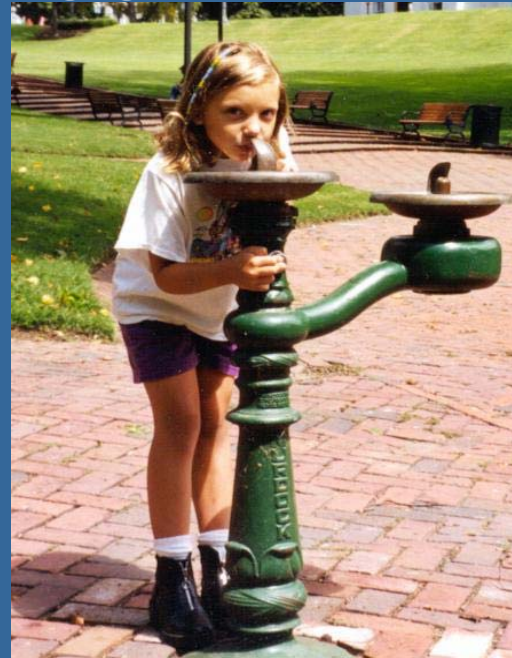
Wildlife

Edible natural resources

Fish

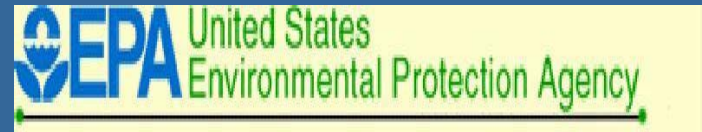
Shellfish

Public Water Supply



Minimum Requirements of WQS

- Use Designations
- **Criteria**
- Antidegradation Policy



Narrative

All state waters free from substances that interfere with designated uses

Numerical

Toxics Aquatic Life
D.O. Temperature pH

Toxics Human Health
Bacteria

Minimum Requirements of WQS

- Use Designations
- Criteria
- **Antidegradation Policy**



- *Tier 1 - Maintain WQS*
- *Tier 2 - High Quality Waters*
- *Tier 3 - Exceptional State Waters*

How are WQS used?



Water Quality

Standards

VPDES Permit Limits

Monitoring

Assessments

305 (b) Report

303(d)
Waters

TMDLs

Watershed Plans
303(e), etc.



Stakeholder role of volunteer monitoring groups in WQS development

- Provide written and/or oral comment at public meetings and hearings
- Volunteer to serve on Ad Hoc Committees for water quality standards rulemakings



Stakeholder involvement in recent VA WQS amendments

- Ragged Island Creek exceptional state waters designation (effective August 10, 2005)
- Nutrient Criteria for lakes and reservoirs (effective August 14, 2007)
- Triennial review (NOPC/public hearing winter 07/08)

RAGGED ISLAND CREEK PROPOSED TIER III DESIGNATION

TECHNICAL ADVISORY COMMITTEE MEETING

November 6, 2003

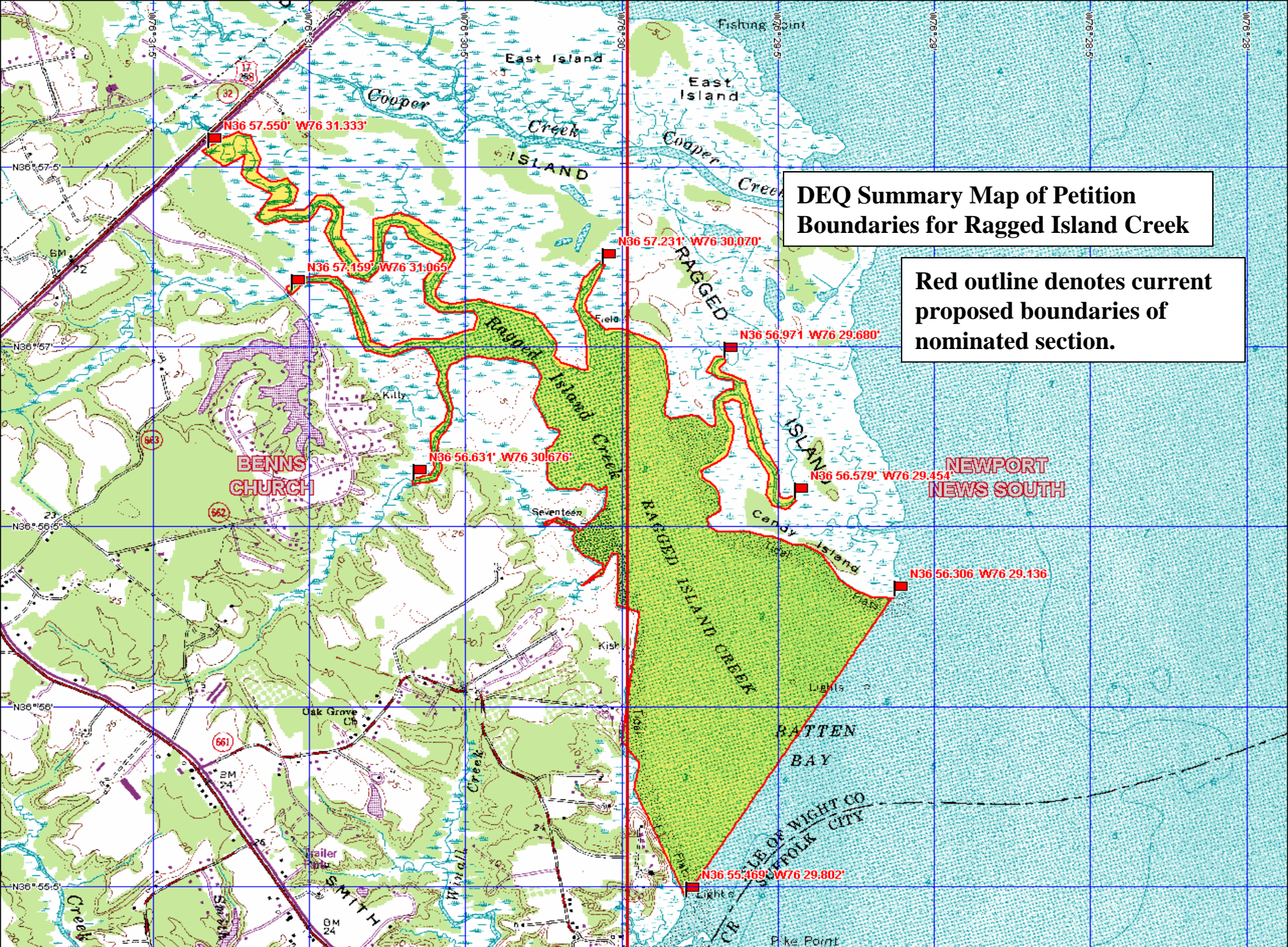


Membership of the Ad Hoc Advisory Committee on Ragged Island Creek Issues

- Isle of Wight Historical Society
- James River Association
- **Isle of Wight Citizen's Association**
- Mid Atlantic Commercial Realty
- Isle of Wight County
- Peninsula Housing and Builders Association
- VA Chesapeake Bay Local Assistance Department
- VA Dept. Transportation, Hampton Roads District Office
- Founders Point L.L.C

ISSUES

- **Construction Stormwater Discharges - Type and Location**
- **Future VDOT MS4 Stormwater Discharges**
- **Delineation of Boundary for Ragged Island Creek Tier III Designation**



**DEQ Summary Map of Petition
Boundaries for Ragged Island Creek**

**Red outline denotes current
proposed boundaries of
nominated section.**



Nutrient Criteria for lakes and reservoirs

Lakes and Reservoirs

Nutrient Water Quality Standards

Recommendations for criteria development came from an Academic Advisory Committee (AAC) formed by the VA Water Resources Research Center & consisted of scientists from several VA colleges & universities :

- **Natural lakes & constructed impoundments should be considered separately**
- **Reservoirs - recreational fish population status can be an indicator of suitability for aquatic life**
- **Chlorophyll a & TP recommendations were provided**

Membership of the Ad Hoc Advisory Committee on Proposed Lake Nutrient Criteria

- Dominion Power
- EPA Region 3
- Ferrum College
- Hampton Roads PDC
- **Lake Anna Association**
- Virginia Lakes & Watershed Assoc.
- Old Dominion University
- Piedmont Environmental Council/Virginia Conservation Network
- Rivanna Water and Sewer Authority
- **Smith Mountain Lake Association**
- Timmons Group
- VA Association of Counties
- VA Association of Municipal Wastewater Agencies
- VA Department of Conservation and Recreation
- VA Department of Game and Inland Fisheries
- VA Department of Health
- VA Tech/Academic Advisory Com.
- VA Manufacture Assoc.
- VA Municipal League

Lakes and Reservoirs

Seasonal (April – October) Numerical Nutrient Criteria for 116 Impoundments* Based on Fishery Type & Ecoregion

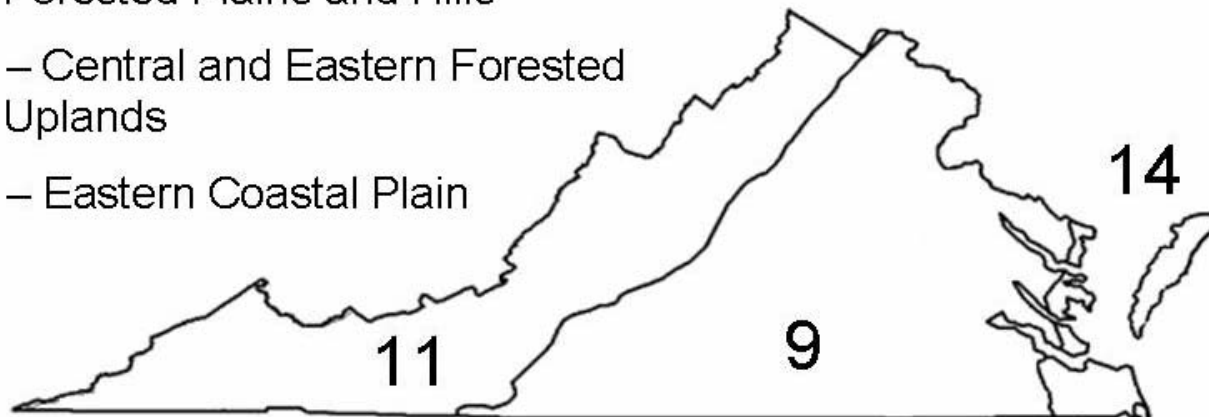
- **Chlorophyll *a***
- **Total Phosphorus (when documented use of algicides during the April – November monitoring period)**
- **Dissolved Oxygen (4 mg/l min, 5 mg/l daily average) only for upper layer (epilimnion) during thermal stratification**

* Publicly accessible lakes > 100 acres in size & publicly accessible water supplies DEQ has previously monitored or plans to monitor

9 - Southeastern Temperate
Forested Plains and Hills

11 – Central and Eastern Forested
Uplands

14 – Eastern Coastal Plain



Lakes and Reservoirs

Fisheries Designated Uses

Ecoregion 14

Coolwater Fisheries



Chl-a = 25 ug/L
TP = 20 ug/l

Warmwater Fisheries



Chl-a = 60 ug/L
TP = 40 ug/l

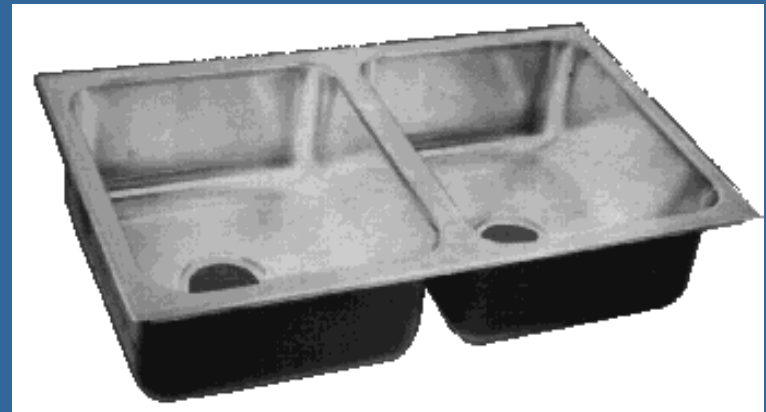
Triennial Review of VA Water Quality Standards



Issues Being Considered Under These Topics

- Use Designation
- Mixing Zone Antidegradation
- Swamp Waters
- Bacteria
- Criteria
- Chesapeake Bay
- Special Standards
- Trout Waters
- Public Water Supply
- Miscellaneous Issues

“Everything but the....”





Ad Hoc Committee

- Chamber of Commerce
- Chesapeake Bay Foundation
- Dominion Resources
- EPA
- Farm Bureau
- Friends of the Rivers VA
- James River Association
- Nature Conservancy
- Navy
- Richmond City
- **Save Our Streams**
- USFWS
- VAMWA
- VA Coal Assoc.
- VA Dept Conservation Rec.
- VA Dept Game Inland Fish.
- VA Dept Health
- VA Manufacture Assoc.
- VIMS

Opportunities to become involved with upcoming VA WQS amendments

- Nutrient Criteria for wadeable streams: NOIRA 2009
- Exceptional State Waters: SNP portion of Hazel R. later this year
- Shellfish Aquaculture Enhancement Zones on the Eastern Shore of Virginia: NOIRA/Public Meeting October 17

Nutrient Criteria

For a stream
segment

And/
Or?

Localized
Components

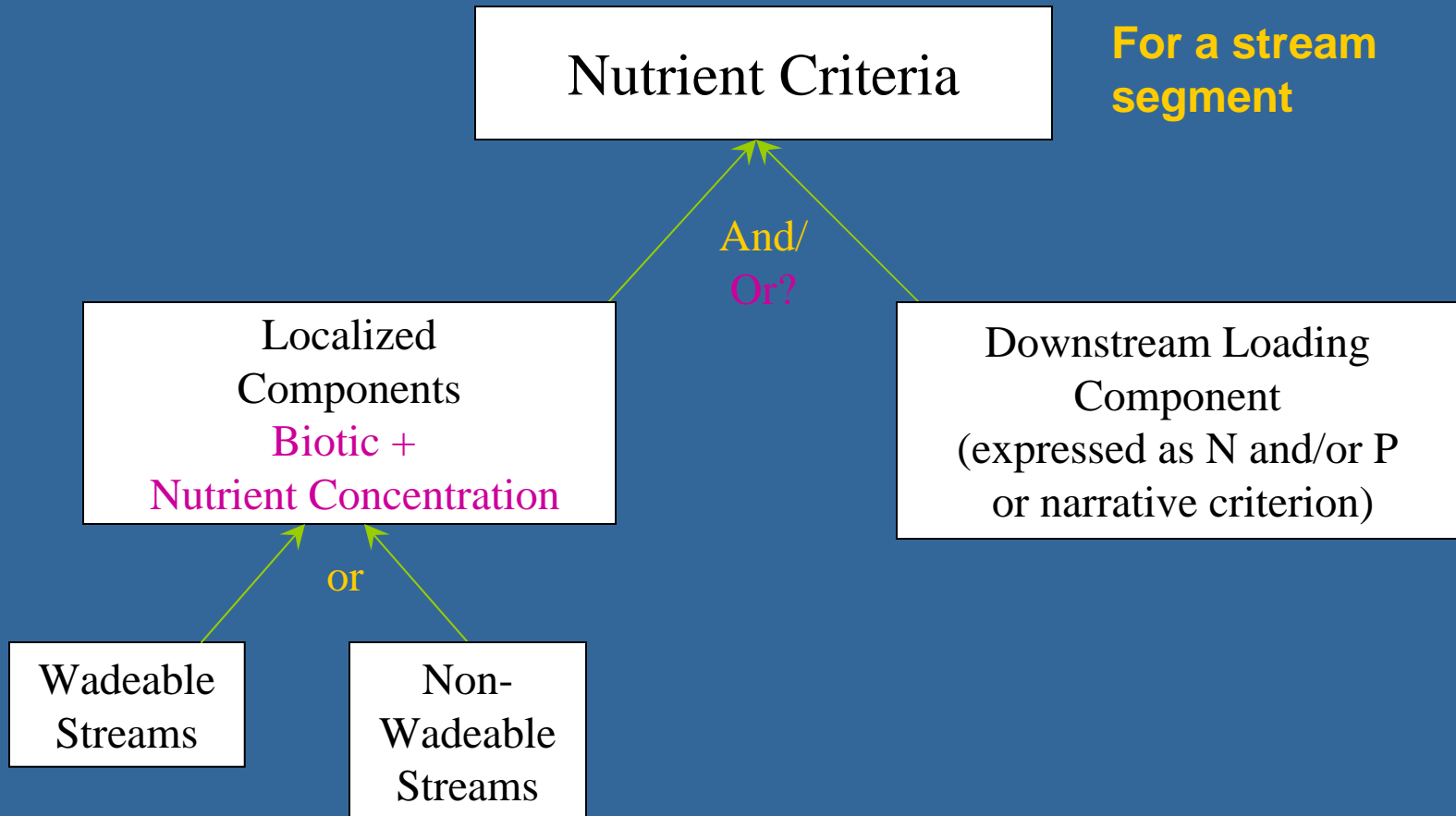
Biotic +
Nutrient Concentration

Downstream Loading
Component
(expressed as N and/or P
or narrative criterion)

or

Wadeable
Streams

Non-
Wadeable
Streams

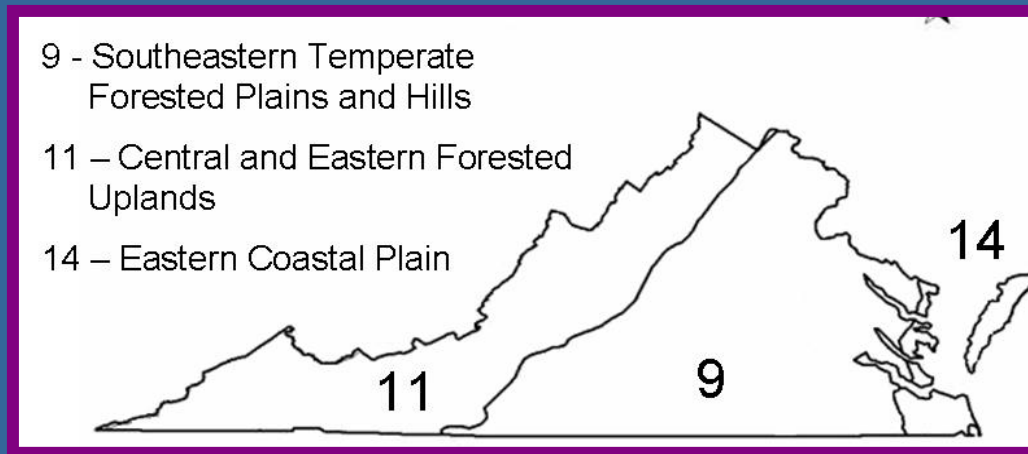


EPA Funding

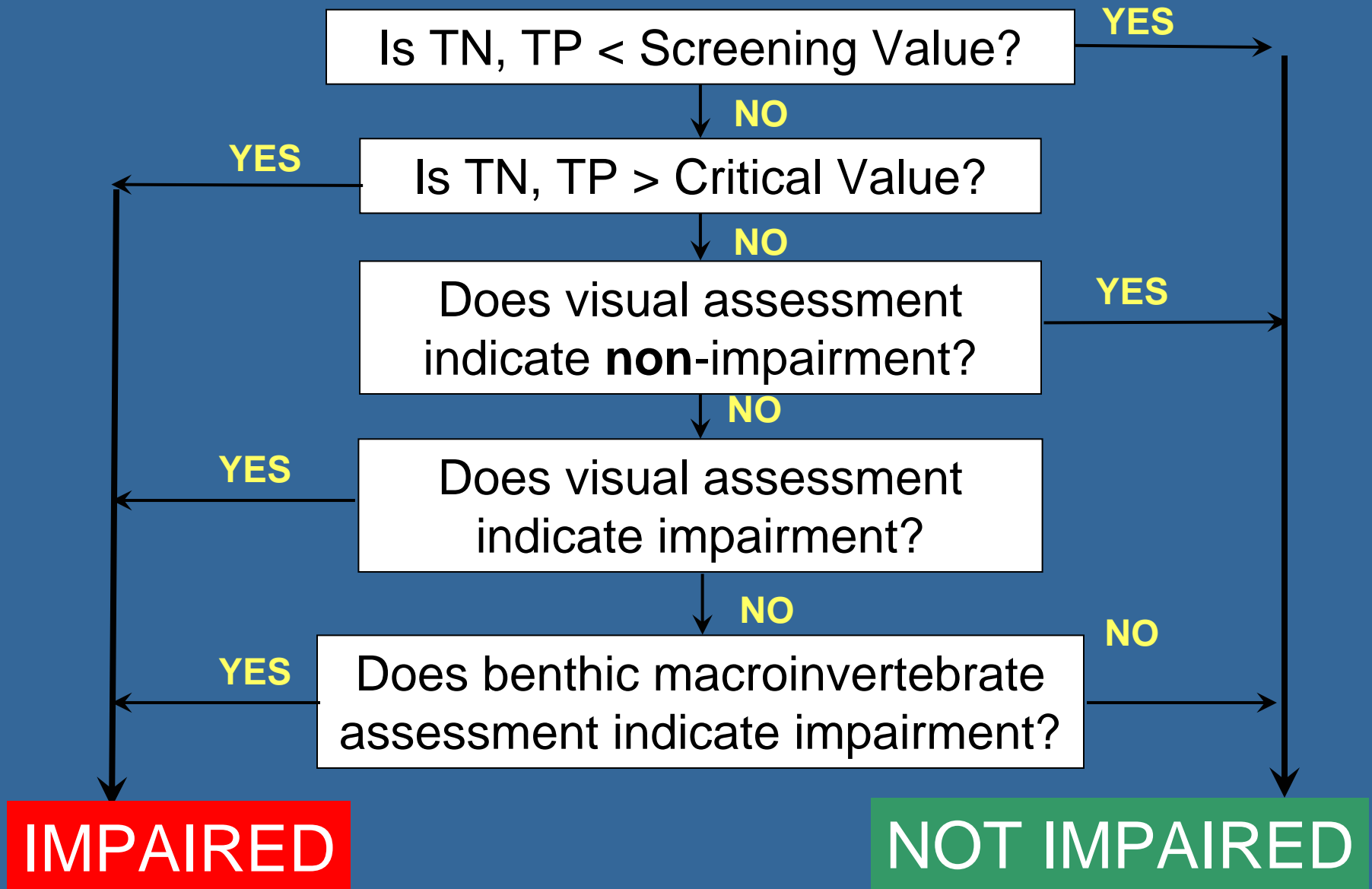
***A Weight of Evidence Screening Value Approach to
Nutrient Criteria Development for Wadeable Streams***

in Aggregate Nutrient Ecoregions IX and XI:

Proposed Pilot Program in Virginia



Proposed Screening Value Approach



Pilot program purpose: Evaluate the ability of a nutrient criteria screening-value approach to achieve its intended goals:

- Scientific and legally defensible criteria that will protect water quality.
- Can be implemented by DEQ with available resources.

Questions?

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